

ABSTRACT

Portable x-ray devices and methods for using such devices are described. The devices have an x-ray tube powered by an integrated power system. The x-ray tube is shielded with a low-density insulating material containing a high-Z substance. The devices can also have an integrated display component. With these components, the size and weight of the x-ray devices can be reduced and the portability of the devices enhanced. The x-ray devices also have an x-ray detecting means that is not structurally attached to the device and therefore is free standing. Consequently, the x-ray devices can also be used as a digital x-ray camera. The portable x-ray devices are especially useful for applications where portability is an important feature such as in field work, remote operations, and mobile operations such as nursing homes, home healthcare, or teaching classrooms. This portability feature can be particularly useful in multi-suite medical and dental offices where a single x-ray device can be used as a digital x-ray camera in multiple offices instead of requiring a separate device in every office.